REMARKS

Claim 1 has been rejected by the Examiner under 35 USC 103(a) as being unpatentable over Yoshimasa et al., JP 06-327791. This rejection is respectfully traversed.

The present invention is directed to a floatable golf ball for use in a driving range which possesses excellent durability and good shot feel.

In golf balls utilized in driving ranges, it is required for such golf balls to possess substantially the same qualities in performance as golf balls which are utilized for playing a normal round of golf. Also, it is advantageous if the golf balls used in driving ranges are floatable since many driving ranges face water-hazards in order to cause the driving range to recreate water hazards which might be normally experienced in a round of golf. A two-piece floatable golf ball which has a low specific gravity and floats on water and has a good shot feel has been proposed in Japanese patent Kokai publication No. 327791, 1994, referred to on page 2 of the present application. This Japanese publication has been relied upon by the Examiner to reject claim 1 of the present application. However, as noted at the bottom of page 2 and the top of page 3 of the present application, such a conventional golf ball, in fact, does not satisfy the requirements of golf balls utilized in a normal round of golf, in that they are very hard and have a very poor shot feel because the core is hard and the stiffness of the cover is too high. The golf ball of the present invention overcomes the deficiencies of the golf ball of the Japanese publication and thus

is patentably distinguishable over the Japanese publication for the reasons set forth here and below.

The floatable golf ball of the present invention comprises a core and a cover covering the core, wherein the cover has a flexural modulus (F) of 80-300 Mpa, the golf ball has a specific gravity of not less than 0.5 and less than 1.0, and a deformation amount (D) of 3.0 – 6.0 mm when applying from an initial load of 98 N to a final load of 1275 N, and a ratio (F/D) of the flexural modulus of the cover (F) to the deformation amount of the golf ball (D) to be within the range of 24 to 31. The golf ball of the present invention exhibits excellent durability while maintaining a soft and good shot feel by adjusting the F/D value to the range of 24 to 31, even if the flexural modulus (F) of the cover is low.

As described in the reply filed in the USPTO on August 4, 2003 and as can be seen by referring to Fig. B of this reply as well as Fig. B attached hereto, the F/D value of the Yoshimasa reference (the area 1 with the circle around it shown in Fig. B) is different from the F/D value of the present invention (the area 2 with the circle around it shown in Fig. B), even if both golf balls have the same value of F or D. Therefore, the golf ball of the Yoshimasa reference having a F/D value out of the range of the present invention is quite different from the golf ball of the present invention.

Fig. A, attached hereto, is a graph displaying the relationship between the F/D value (X-axis) and the durability (Y-axis) shown in Tables 5 and 6 of the present application. Example 3 having a F/D value of 18 and Example 5,

having a F/D value of 50 fall outside of the F/D range of 24-31 as recited in claim 1 of the present application, and as such are shown as Comparative Examples in Fig. A. Thus, the F/D value of the present invention is within the range of 24-31 whereas the F/D value of the Yoshimasa reference is within the range of 36-98. As shown in Fig. A, the golf ball having a F/D value of 24-31 has a durability of not less than 137 whereas the golf ball having a F/D value of 36-98 has a durability of not more than 128. Thus, the subject matter of Table 5 as shown in Fig. A clearly shows that the durability of the golf ball with a F/D value within the range of 24-31 is excellent whereas the durability of the golf ball of the Yoshimasa reference having a F/D value out of the range of 24-31 is much poorer. Thus, it is believed that Fig. A clearly shows the advantageous results achieved by the present invention which utilizes a F/D ratio within the range of 24-31. For the Examiner's consideration, the Applicant is also enclosing herewith a copy of an English translation of the Tables and Footnotes of the Yoshimasa reference.

Accordingly, in view of the above amendments and remarks reconsideration of the rejection of claim 1 of the present application is respectfully requested.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Mr. Joseph A. Kolasch (Reg. No. 22,463) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicant respectfully petitions for a two (2) month extension of time for filing a response in connection with the present application and the required fee of $420.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachments: Figs. A and B
Excerpted Translation of Yoshimasa reference

Fig. A

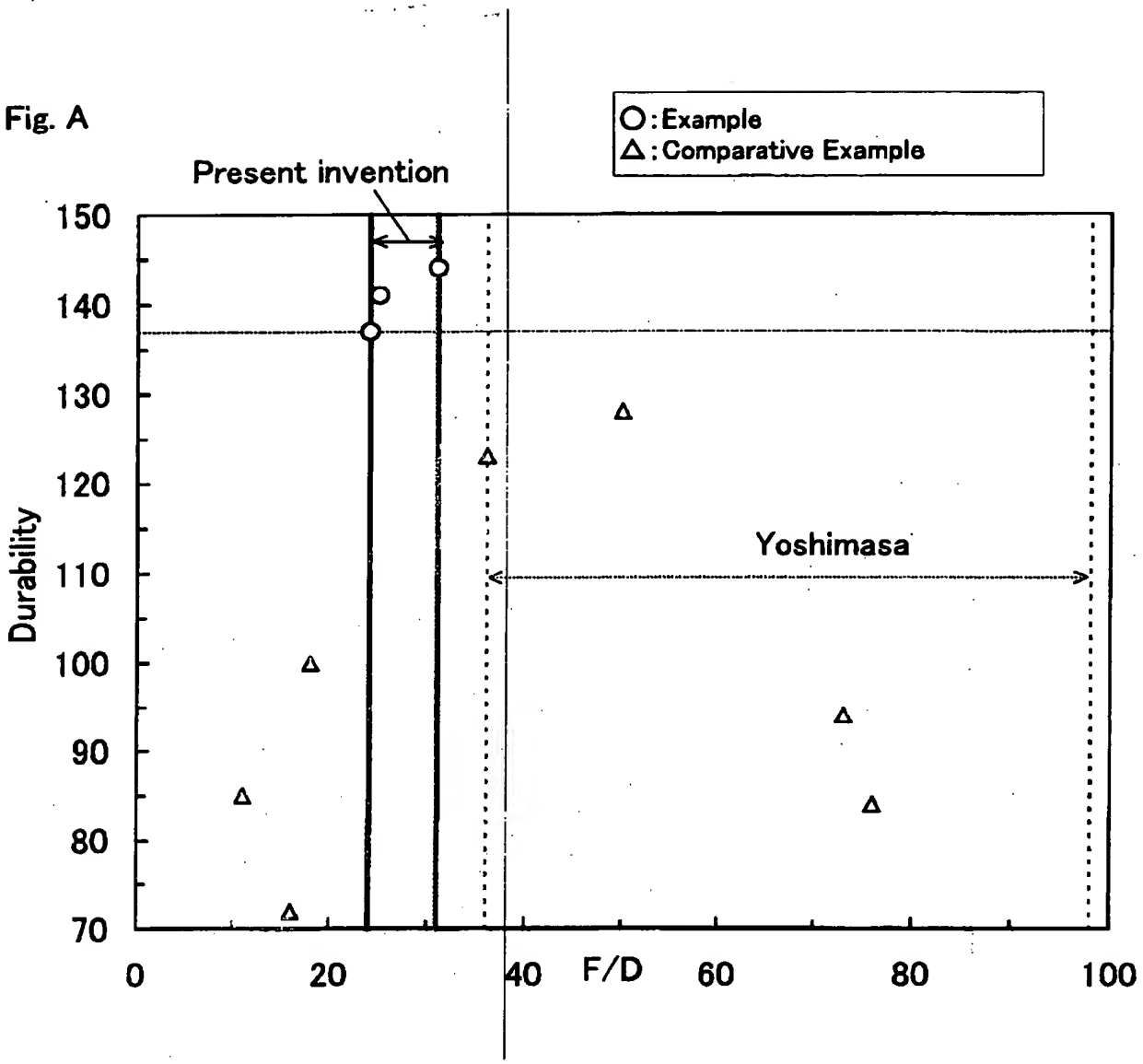
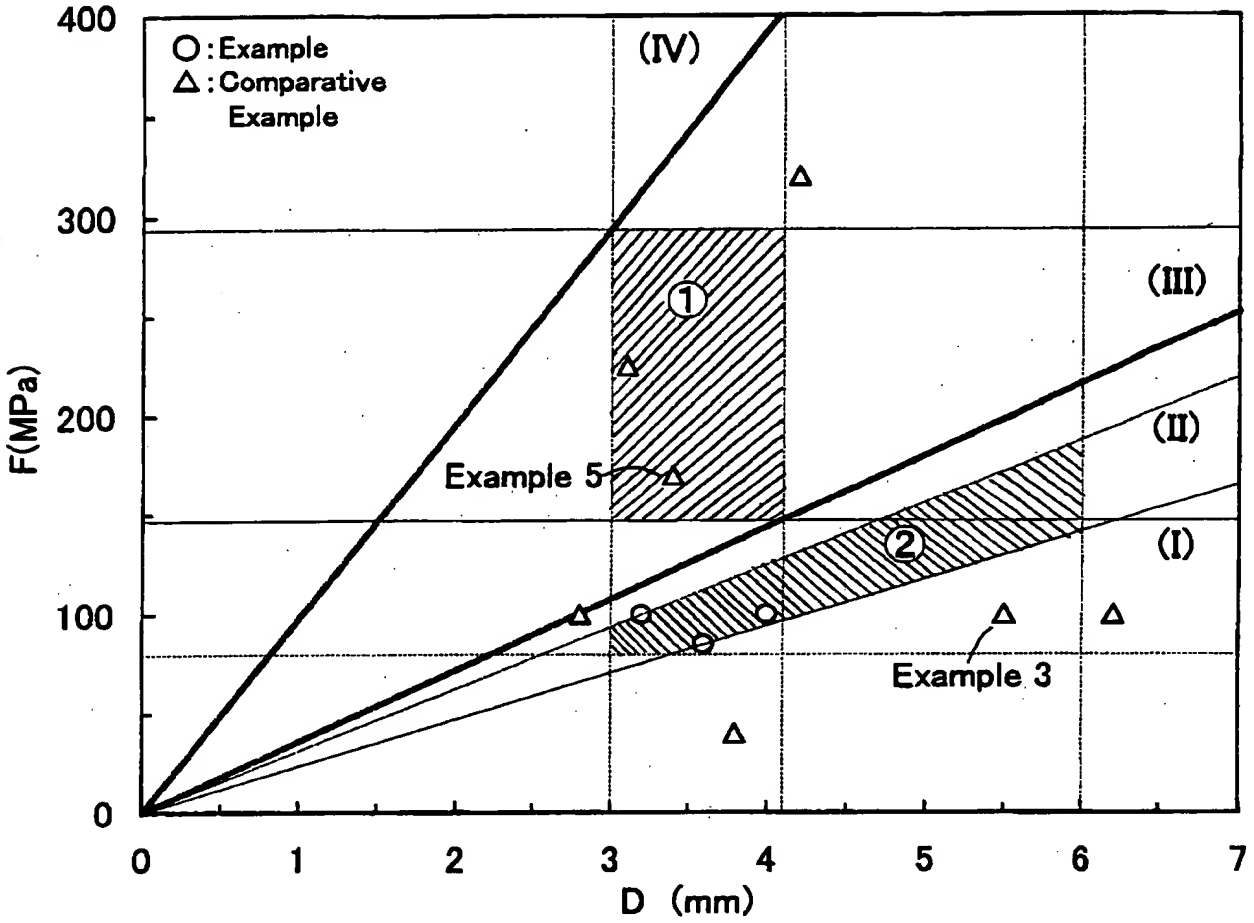


Fig. B



Yoshimasa reference Table

Table 1

	Example No.			
	1	2	3	4
JSR BR11 *1	60	60	60	60
VCR412 *2	40	40	40	40
Mipelon XM-220 *3	15	15	15	15
High-styrene resin *4	13	13	13	13
Zinc oxide	12	12	12	11.4
Hollow particulate *5	20	20	20	20
Zinc acrylate	0	0	0	30
Methacrylic acid	12	12	12	0
Dicumyl peroxide	1.5	1.9	1.9	2.2
Vilcanization condition(°C×min)	155×30	155×24	155×24	160×20
Physical properties of core				
Weight(g)	28.5	28.5	28.5	28.6
Compression(mm)	3.7	3.5	3.5	3.6
Hardness distribution (JIS-C)				
Center point	66.5	72.5	72.5	65.5
5mm from center point	70.0	74.5	74.5	68.0
10mm from center point	71.0	75.5	75.5	69.0
15mm from center point	73.0	76.5	76.5	78.0
Surface	74.0	77.0	77.9	80.0

Table 2

	Comparative Example No.		
	1	2	3
JSR BR11 *1	60	60	60
VCR412 *2	40	40	40
Mipelon XM-220 *3	15	15	15
High-styrene resin *4	13	13	13
Zinc oxide	12	11.5	12.4
Hollow particulate *5	20	20	20
Zinc acrylate	0	0	0
Methacrylic acid	12	20	20
Dicumyl peroxide	1.5	1.6	1.9
Vilcanization condition(°C×min)	155×30	169×20	169×32
Physical properties of core			
Weight(g)	28.5	28.5	28.5
Compression(mm)	3.7	2.5	2.4
Hardness distribution (JIS-C)			
Center point	66.5	73.0	73.0
5mm from center point	70.0	75.0	75.0
10mm from center point	71.0	77.0	80.0
15mm from center point	73.0	80.0	84.0
Surface	74.0	83.0	86.0

*1: Cis-1,4-polybutadiene rubber, which is commercially available from JSR Co., Ltd. under the trade name of "BR-11" (Content of 1,4-cis-polybutadiene: 96 %)

*2: Polybutadiene rubber containing syndyotactic-1,2-polybutadiene of 12 % by weight, cis-1,4-polybutadiene of 86 % by weight and trans-1,4-polybutadiene of 2 % by weight, which is commercially available from Ube Industries, Ltd. under the trade name of "UBEPOL-VCR412"

*3: Fineparticle high molecular weight polyolefin powder, which is commercially available from Mitsui Chemicals, Inc. under the trade name of "Mipelon XM-220" (average particle diameter: 20 μm, molecular weight: not less than 2 millions)

*4: High-styrene resin, which is commercially available from Nippon Zeon Co., Ltd. under the trade name of "Nipol 2007J"

*5: Hollow particulate of soda-lime borosilicate glass having a pressure resistance of 69 MPa and an average particle density of 0.60 g/cc, which is commercially available from Sumitomo 3M, Ltd.

Table 3

	Cover composition			
	A	B	C	D
Hi-milan 1855 *6	35	15	0	15
Hi-milan 1705 *7	20	25	10	30
Hi-milan 1706 *8	45	60	90	20
Hi-milan 1555 *9	0	0	0	25
Titanium dioxide (TiO_2)	1.0	1.0	1.0	1.0
Flexural stiffness (Kg/cm^2)	1700	2300	3200	1900

*6: Hi-milan 1555 (trade name), ethylene-methacrylic acid copolymer ionomer resin obtained by neutralizing with sodium ion, manufactured by Mitsui Du Pont Polychemical Co., Ltd.

*7: Hi-milan 1605 (trade name), ethylene-methacrylic acid copolymer ionomer resin obtained by neutralizing with sodium ion, manufactured by Mitsui Du Pont Polychemical Co., Ltd.

*8: Hi-milan 1705 (trade name), ethylene-methacrylic acid copolymer ionomer resin obtained by neutralizing with zinc ion, manufactured by Mitsui Du Pont Polychemical Co., Ltd.

*9: Hi-milan 1706 (trade name), ethylene-methacrylic acid copolymer ionomer resin obtained by neutralizing with zinc ion, manufactured by Mitsui Du Pont Polychemical Co., Ltd.

Table 4

	Example No.				
	1	2	3-1	3-2	4
Core	Example 1	Example 2	Example 3	Example 3	Example 4
Cover composition	B	B	A	D	B
Physical properties of golf ball					
Weight(g)	38.50	38.50	38.50	38.50	38.60
Specific gravitiy	0.951	0.953	0.952	0.952	0.954
Compression	74	81	79	80	79
Durabity	99	97	100	99	98
Shoot feel	○	○	○	○	○

Table 5

	Comparative Example No.		
	1	2	3-1
Core	Comparative Example 1	Comaparative Example 2	Comparative Example 3
Cover composition	C	A	B
Physical properties of golf ball			
Weight(g)	38.40	38.50	38.40
Specific gravitiy	0.953	0.954	0.957
Compression	80	85	100
Durabity	60	98	97
Shoot feel	○	×	×